

Okay to file with VPA

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Previously presented): A method for generating singlet oxygen by reacting a polymer-immobilized photosensitizer with oxygen in the presence of visible light which is absorbed by the photosensitizer wherein the polymer-immobilized photosensitizer comprises a cross-linked polymer backbone to which is bound a plurality of photosensitizer groups and a plurality of cationic groups $^+QR_3$, wherein Q is selected from the group consisting of phosphorus and nitrogen, each R is independently a straight, branched or cyclic alkyl group of 1 to about 20 carbons or an aralkyl group and the average total number of carbon atoms in the group QR_3 is at least four.

Claim 2 (Original): The method of Claim 1 wherein the average total number of carbon atoms in the group QR_3 in the polymer-immobilized photosensitizer is from 4 to about 40.

Claim 3 (Original): The method of Claim 1 wherein the average total number of carbon atoms in the group QR_3 in the polymer-immobilized photosensitizer is from 12 to about 30.

Claim 4 (Original): The method of Claim 1 wherein all groups QR_3 in the polymer-immobilized photosensitizer are identical.

Claim 5 (Original): The method of Claim 1 wherein the polymer-immobilized photosensitizer comprises at least two 5 different groups QR_3 .

Claim 6 (Original):. The method of Claim 4 wherein each Q in the polymer-immobilized photosensitizer is a phosphorus atom.

Claim 7 (Amended): The method of Claim 1 wherein the photosensitizer group is selected from the group consisting of Rose Bengal, Eosin Y, Alizarin Red S, Congo Red, Orange G, fluorescein dyes, rhodamine dyes, Erythrosin B, chlorophyllin 5 trisodium salt, salts of hemin, hematoporphyrin, Methylene Blue, Crystal Violet and Malachite Green.

Claim 8 (Original): The method of Claim 1 wherein the photosensitizer group is Rose Bengal.

Claim 9 (Original): The method of Claim 1 wherein the photosensitizer groups are covalently linked to the polymer backbone through linker groups.

Claim 10 (Original): The method of Claim 1 wherein the photosensitizer groups are bound to the polymer by electrostatic attraction to the cationic groups.

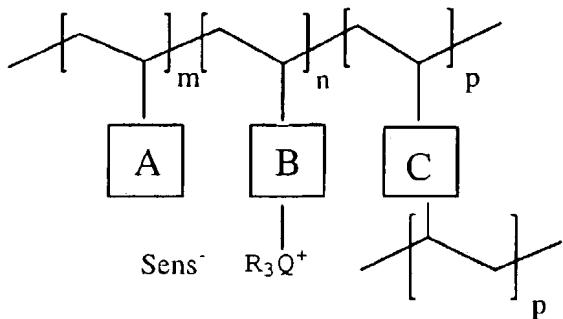
Claim 11 (Original): The method of Claim 1 wherein each Q in the polymer-immobilized photosensitizer is a phosphorus atom, the average total number of carbon atoms in the group QR_3 is from 12 to about 30 and the photosensitizer group is Rose Bengal.

Claim 12 (Original): The method of Claim 1 performed in a solvent.

Claim 13 (Twice Amended): The method of Claim 1 wherein the polymer-immobilized photosensitizer is in the form of small particles having a diameter of less than about 0.2 mm.

Claim 14 (Currently Amended): The method of Claim 1 wherein the polymer-immobilized photosensitizer has the formula:

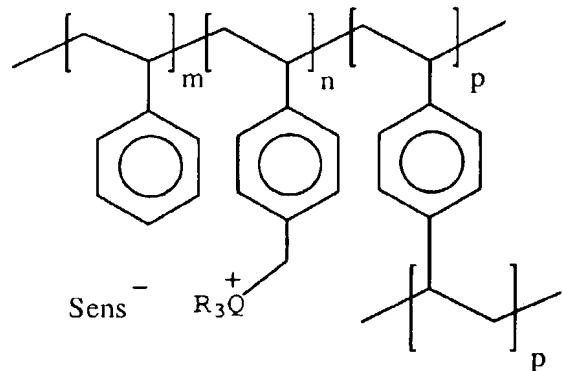
5



wherein A, B and C together with the two carbons of the
10 polymer chain represent ethylenically unsaturated monomer
units which can include alkyl substituents on the chains, A
is a monovalent group selected from the group consisting of
hydrogen, halogen, alkyl, aryl, aralkyl, carboxyl ester-
COOR, oxycarbonyl, -OC(=O)R, and carboxamide -C(=O)NR₂, B and
15 C are each either a bond or a divalent linker group selected
from the group consisting of alkylene, arylene, aralkylene,
carboxyl -COO-, oxycarbonyl, -OC(=O)-, and carboxamide-
C(=O)NR-, wherein m, n and p represent the mole fraction of
the respective monomer units wherein p is from about 0.01 to
20 about 0.1, m is from 0 to about 0.95, n is from about 0.05 to
about 0.95, wherein Q is selected from the group consisting
of phosphorus and nitrogen, each R is independently a
straight, branched or cyclic alkyl group of 1 to about 20
carbons or an aralkyl group and the average total number of
25 carbon atoms in the group QR₃ is at least 4 and Sens is an
anionic photosensitizer group.

Claim 15 (Original): The method of Claim 14 wherein the polymer-immobilized photosensitizer has the formula:

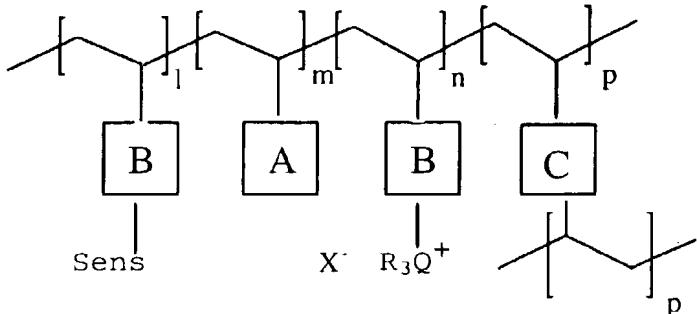
5



wherein A is a phenyl group, B is a benzyl group, C is a p-
10 phenylene group.

Claim 16 (Currently Amended): The method of Claim 14 wherein the polymer-immobilized photosensitizer has the formula:

5



wherein A, B and C together with the two carbons of the polymer chain represent ethylenically unsaturated monomer units which can include alkyl substituents on the chains, A is a monovalent group selected from the group consisting of hydrogen, halogen, alkyl, aryl, aralkyl, carboxyl ester-COOR, oxycarbonyl, -OC(=O)R, and carboxamide -C(=O)NR₂, B and C are each either a bond or a divalent linker group selected from the group consisting of alkylene, arylene, aralkylene, carboxyl -COO-, oxycarbonyl, -OC(=O)-, and carboxamide-C(=O)NR-, wherein l, m, n and p represent the mole fraction of the respective monomer units wherein p is from about 0.01 to about 0.1, m is from 0 to about 0.95, n is from about 0.05 to about 0.95, l is from about 0.05 to about 0.95, wherein Q is selected from the group consisting of phosphorus and nitrogen, each R is independently a straight, branched or cyclic alkyl group of 1 to about 20 carbons or an aralkyl group and the average total number of carbon atoms in the group QR₃ is at least 4, wherein X is selected from the group consisting of halide and sulfonate ester and Sens is a

photosensitizer group.

Claim 17 (Currently Amended): A method for oxidizing an oxidizable compound comprising admixing an oxidizable compound and a polymer-immobilized photosensitizer in a solvent, providing oxygen to the reaction mixture and

5 irradiating the mixture with light to produce singlet oxygen for reaction with the oxidizable compound wherein the polymer-immobilized photosensitizer comprises a cross-linked polymer backbone to which is bound a plurality of photosensitizer groups and a plurality of cationic groups $^+QR_3$

10 wherein Q is selected from the group consisting of phosphorus and nitrogen, each R is independently a straight, branched or cyclic alkyl group of 1 to about 20 carbons or an aralkyl group and the average total number of carbon atoms in the group QR_3 is at least four.

Claim 18 (Original): The method of Claim 17 wherein each Q in the polymer-immobilized photosensitizer is a phosphorus atom, the average total number of carbon atoms in the group QR_3 is from 12 to about 30 and the photosensitizer group is Rose

5 Bengal.

Claim 19 (Original): The method of Claim 17 wherein the photosensitizer groups are covalently linked to the polymer backbone through linker groups.

Claim 20 (Original): The method of Claim 17 wherein the photosensitizer groups are bound to the polymer by electrostatic attraction to the cationic groups.

Claim 21 (Currently Amended): The method of Claim 17 wherein the oxidizable compound is selected from the group consisting of vinyl ethers, vinyl sulfides, enamines, non-activated alkenes, dienes, and sulfides.

Claim 22 (Original): The method of Claim 17 used to prepare a dioxetane compound from a vinyl ether by a 2 + 2 cycloaddition reaction with singlet oxygen.